Student engagement is important

Student engagement has been described as a combination of the time and energy students devote to their learning (Kuh, Cruce & Shoup 2008).

- Engagement has been demonstrated to be related to positive learning outcomes (Coates 2009).

Engaging students is particularly important in entrepreneurship education:

- The new enterprise development process requires decisions across a very wide range of aspects of the venture in situations of high uncertainty (Timmons et al. 2011). Teaching methods in this field therefore need to engage students so that they can best understand how to address the complexities and the wide range of practical and conceptual challenges that arise in the entrepreneurial process (Gibb 2002; Biggs 2003).
Motivation for this research
As individual educators, how can we enhance student engagement?
In the classroom, we operate at the level of teaching methods and activities, and with particular cohorts of students;
- What specific actions could we take to change/improve our classroom activities/behaviours to achieve this?
- To do this, we need to know what students mean by “engagement” with a particular teaching method/activity

Case example:
- What do students understand by “engagement” with Team-Based Learning – TBL, as a specific teaching method?

TBL has been designed to engage students (Michaelsen, Knight & Fink 2004). It has been implemented in 12 course deliveries/classes in UniSA undergraduate entrepreneurship courses since early 2010.

Team-Based Learning
A structured approach for collaborative learning:
- Students learn material in advance of a teaching session;
- At the start of the session, they take a multiple-choice test on the prescribed content, then follow this by completing the same multiple-choice test as a team, using "scratch and win" cards to provide immediate feedback;
  - This is part of their assessment.
- Students work on team exercises that illustrate the application/use of the material they have learned;
- Students carry out anonymous teamwork contribution feedback exercises (using SparkPlus software) to improve teamwork;
- Students complete a major team project for assessment.
Measuring engagement

What tools might we use to assess/measure engagement?

- NSSE and AUSSE surveys are used to measure student engagement with their institutions (Coates 2009);
  - These can be used in a top-down approach at the course level (Balan & Metcalfe 2012) to subjectively assess student engagement with specific teaching methods such as Team-Based Learning, but this approach does not provide information for improving methods.

- **Class-level** surveys have been developed:
  - CLASSE, adapted from the NSSE (Ouimet & Smallwood 2005);
  - SCEQ (Handelsman, Briggs, Sullivan & Towler 2005);
  - Psychometric assessment of student satisfaction with TBL (Mennenga 2012)

  These require large numbers for reliability.

Research questions

In summary, these are all “higher-level” measurement methods that by and large do not provide detailed information to allow change or fine-tuning to particular teaching activities or methods to improve engagement.

This means that we need to explore what engagement might mean for students in our particular classes, with regard to this particular teaching method.

The research questions for this exploratory study are:

1. What are the dimensions of student engagement in Team-Based Learning as a specific teaching method, and;
2. Are the dimensions of engagement the same for different deliveries/classes of the same course?

This exploratory research implemented a “grounded” approach, using qualitative data.
Research participants

- This exploratory research investigated the perceptions of three separate classes of undergraduate students taking the same entrepreneurship foundation course/subject.
- Data collection was carried out by the same researcher in the same manner in each class.

<table>
<thead>
<tr>
<th>Class</th>
<th>1</th>
<th>2</th>
<th>3</th>
</tr>
</thead>
<tbody>
<tr>
<td>Numbers in class</td>
<td>45</td>
<td>36</td>
<td>54</td>
</tr>
<tr>
<td>Females</td>
<td>33%</td>
<td>47%</td>
<td>32%</td>
</tr>
<tr>
<td>International</td>
<td>33%</td>
<td>61%</td>
<td>34%</td>
</tr>
<tr>
<td>Participants</td>
<td>39</td>
<td>34</td>
<td>43</td>
</tr>
<tr>
<td>Number of comments/ data elements included in the concept mapping analysis</td>
<td>91</td>
<td>76</td>
<td>96</td>
</tr>
</tbody>
</table>

Data collection

Students in each class were asked to describe their engagement toward TBL as a teaching method.

Data for this grounded research was collected in the form of voluntary and anonymous qualitative comments, using a "minute paper" method (Angelo & Cross 1993).

The same data collection method was used in each class.
Data analysis method – concept mapping

This qualitative data was analysed using concept mapping (Borgatti, Everett & Freeman 2002)

This method was selected because:

- It is a mixed method approach that combines qualitative interpretation with quantitative analysis;
- It can be used to analyse data in the form of either long strings of text, or short comments;
- The output identifies themes or clusters of comments;
- Themes can be explored at different levels of detail;
- The nature of the graphical output helps to identify relationships between underlying themes;
- It provides an audit trail that allows each step in the analysis to be assessed and critiqued, allowing collaboration, verification and replication.

Data was manually coded

The raw data was entered into a spreadsheet, and each of the three datasets was coded separately:

- The researcher started with the first statement and identified the statements below it on the list, that were identical or very close in meaning;
- Statements were not interpreted.

The coding process was repeated for each subsequent statement, proceeding down the list.
Data maps were created

Data was entered into UCINET6
This software performs what is in effect a
factor analysis on the data.
It produces a map showing the clusters of
data:
- The nodes shown on the map are each
data element (statement);
- This is a 3-dimensional map;
- The lines between each data element
  are the same length;
- The researcher determines the number
  of clusters.
The dataset for each class was analyzed separately:

An “optimal” number of clusters was selected

An “optimal” number of clusters was selected; eg
when additional data groups did not seem to add
to the overall picture ("saturation");
- In this case, 10 clusters were selected.
Themes were identified

The cluster arrangements were used to group data elements in the spreadsheet:

- These groups were checked for homogeneity:
  - Items that did not fit, had their coding corrected.
- The cluster maps were re-drawn following coding corrections (the examples that have been shown are the final results following this validation process).

Finally, themes were interpreted:

- The researcher drew the names of the themes from the elements in each cluster.

This analysis was repeated for the two other sets of data.

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Key themes for the 3 separate classes

<table>
<thead>
<tr>
<th>Class 1</th>
<th>Class 2</th>
<th>Class 3</th>
</tr>
</thead>
<tbody>
<tr>
<td>Improve understanding through teamwork</td>
<td>Stimulates thinking and ideas</td>
<td>Share knowledge and learn more</td>
</tr>
<tr>
<td>Entertaining and fun</td>
<td>Learn to communicate in a team and improve teamwork</td>
<td>Forces interaction between students</td>
</tr>
<tr>
<td>Improve communication with others</td>
<td>Encourage preparation by being a more interesting method</td>
<td>Improves teamwork skills</td>
</tr>
<tr>
<td>Help to understand self and others</td>
<td>Allows us to learn from others</td>
<td>Helps me keep up with my work</td>
</tr>
<tr>
<td>Develop good teamwork</td>
<td>Fun and enjoyable</td>
<td>Get to know self and others</td>
</tr>
<tr>
<td>Makes me learn content and be prepared for class</td>
<td>Helps me to get to know other people</td>
<td>Fun and enjoyable</td>
</tr>
<tr>
<td>Improves my marks</td>
<td>Helps to improve my scores and marks</td>
<td>Forces learning and accountability</td>
</tr>
<tr>
<td>Practical personal improvement</td>
<td>Like a real world exercise</td>
<td>Improve communication skills</td>
</tr>
<tr>
<td>Good preparation for the workplace</td>
<td>Makes it easier to understand course content</td>
<td>More effective learning</td>
</tr>
<tr>
<td>Sharing ideas with others</td>
<td>Competition aspect of assessment engages</td>
<td>Teamwork is more productive</td>
</tr>
</tbody>
</table>
Summary of themes across the three classes

These are the reasons across these three entrepreneurship classes why students found the Team-Based Learning method to be engaging. They are compared with three aspects of engagement (Fredricks, Blumenfield & Paris 2004):

<table>
<thead>
<tr>
<th>Consolidated themes in this study</th>
<th>Behavioral</th>
<th>Emotional</th>
<th>Cognitive</th>
</tr>
</thead>
<tbody>
<tr>
<td>Improve understanding and learning</td>
<td></td>
<td></td>
<td>Y</td>
</tr>
<tr>
<td>Improve communication skills</td>
<td></td>
<td></td>
<td>Y</td>
</tr>
<tr>
<td>Know myself and others</td>
<td></td>
<td></td>
<td>Y</td>
</tr>
<tr>
<td>Fun and enjoyable</td>
<td>Y</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Share ideas</td>
<td></td>
<td>Y</td>
<td></td>
</tr>
<tr>
<td>Preparation for workplace</td>
<td></td>
<td></td>
<td>Y</td>
</tr>
<tr>
<td>Improves marks</td>
<td></td>
<td></td>
<td>Y</td>
</tr>
</tbody>
</table>

Discussion

- There was a good “alignment” of themes for these three classes
- The research identified largely cognitive aspects of engagement for this specific teaching method
- The consolidated themes mapped well onto existing measures for engagement at the course and institutional levels
- The results provide practical information for continuing development of the way that Team-Based Learning is implemented in this course/subject;
  - These key themes are emphasised during classes in order to enhance/ build/ reinforce engagement.
Further research

- Refine methods for consolidating results across classes.
- Modify data collection to identify influences of gender and type of student (international/local).
- Further compare results with “higher-level” dimensions used in class-level and institutional-level engagement measurement instruments such as SCEQ and NSSE;
  - In particular, explore the relationship between the dimensions in those instruments and the findings in this research.
- The links between the clusters suggest relationships between the themes;
  - These relationships can be explored in the context of the engagement literature (theory development).

References

- Michaelsen, LK, Knight, AB & Fink, LD (eds) 2004, Team Based Learning: a Transformative Use of Small Groups and College Teaching, Stylus Publishing LLC, Sterling, VA.